CURRENT LITERATURE

NOTES FOR STUDENTS

Weather and fruitfulness.—DORSEY[1] has done much to place on an experimental basis a subject concerning which there have been many erroneous popular beliefs. In so far as it affects pollination and fertilization, he divides weather into 4 components, rain, temperature, wind, and sunshine. Wind and sunshine in themselves are of minor importance. Rain prevents the dehiscence of the anthers, or causes them to close if they have already dehisced. While this is beneficial in retaining much of the pollen in the anther during a rain, the pollen is not available for pollination during this time. Contrary to popular belief, rain does not cause the pollen to burst, and although the stigmatic fluid may be diluted thereby, this does not seem to be injurious. Some pollen may be washed from the stigma by rain, but an abundance is left for fertilization. Rain does not injure the viability of pollen. Low temperatures retard the growth of the pollen tube, but do not seem to cause delay in the abscission of the style. The stigma is receptive for 4–6 days and then rapidly disintegrates. The style abscisses 8–12 days after bloom. A delay in pollination due to rain, or slow pollen tube growth due to low temperatures, may therefore eliminate fertilization by preventing the pollen tube from passing the point of abscission before the abscission of the style. Applying this analysis of weather to certain years of fruitfulness and to certain other years of non-fruitfulness, it is found that each year there is a definite correlation between the weather and the setting of fruit. The experiments are thus given a practical test.—S. V. EATON.

Determination of biological fluids.—Duggar and Dodge,[2] after discussing some of the difficulties encountered in examining biological fluids, particularly colored plant juices, by the indicator method of H ion determination, describe a new method which they have found satisfactory for the examination of colored plant juices. "The method consisted in simply arranging for each side of the colorimeter a pair of cups slipping to a certain depth one into the other. The method of procedure is then as follows. For the lefthand

[1] DORSEY, M. J., Relation of weather to fruitfulness in the plum. Jour. Agric. Res. **17**:103–126. *pls. 13–15. fig. 1.* 1919.

[2] DUGGAR, B. M., and DODGE, C. W., The use of the colorimeter in the indicator method of H ion determination with biological fluids. Ann. Mo. Bot. Gard. **6**:61–70. 1919.

set, or column, water (or colored standard solution) is used in the outer cup, and the colored test fluid plus the indicator in the inner cup. After adjustment, this set is not removed from the colorimeter during an observation. In the case of the righthand set the outer cup contains the colored test fluid, while the inner cup is for the standard solution plus indicator. This set is placed on the right for convenience, as it may be necessary to compare with the test fluid a series of standards until an exact match is obtained. A rough comparison, of course, is made before selecting the standard solution for comparison. In each case the column must contain an equal depth of colored test solution and of standard or colorless liquid, the indicator being in the standard in the one case and in the test solution in the other. There are no optical difficulties, and unless the indicator combines with the test solution, the comparison may be perfect."

The authors believe this method is as rapid as and more accurate than other methods.—J. WOODARD.

Storied structure of dicotyledonous woods.—A recent paper by Record[3] continues his studies upon the storied or tierlike structure of woods. He finds this arrangement of the secondary elements characteristic of many dicotyledonous woods, occurring through a wide range of orders and families. Such woods on longitudinal section (particularly the tangential) present fine cross lines or striations ("ripple marks"), which may be due to (1) the horizontal seriation of the medullary rays, (2) the tierlike arrangement of the tracheids, wood fibers, vessel segments, and the secondary phloem elements, or (3) a combination of (1) and (2). In some woods the pit areas on the fibers are also in seriation. This storied structure has been found fairly characteristic of the families Leguminosae (40 genera), Bignoniaceae (3), Bombacaceae (3), Compositae (3), Malvaceae (4), Sterculiaceae (7), Tiliaceae (5), and Zygophyllaceae (3); and occurs in one or two genera of each of the following families: Amarantaceae, Ebenaceae, Hippocastanaceae, Moraceae, Sapindaceae, and Ulmaceae.

Particular attention has been given in the present investigation to the various elements storied, the uniformity and distinctness of these transverse lines (ripple marks), and the height of the tiers in each wood examined. "Ripple marks" are sufficiently constant in stems of considerable thickness to serve, the author believes, as a "valuable diagnostic feature."—LADEMA M. LANGDON.

Antarctic and sub-antarctic vegetation.—TURRILL[4] has embodied in a convenient and useful summary the botanical results of the Swedish expedi-

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[3] RECORD, S. J., Storied or tierlike structures of certain dicotyledonous woods. Bull. Torr. Bot. Club **46**:253–273. 1919.

[4] TURRILL, W. B., Botanical results of Swedish South American and antarctic expeditions. Roy. Bot. Gard. Kew Bull. 268–279. 1919.